Space Weather Forecast

Issued on Wednesday 26 February 2025 at 00:16 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Moderate flares likely. Slight chance G1/Minor Storms, mainly Day 4 (28 Feb). Declining chance of S1/Minor Radiation Storm.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate. A long duration flare from over the western limb peaked at 24/2306 UTC and was still at Moderate levels at the start of the 24 hour period. A further long duration Moderate flare was observed peaking at 25/1159 UTC, from the southwest of the disc.

There are now eight sunspot regions on the visible disc. The largest and most notable is in the southwest. There has been a slight loss of areal size, but a slight increase in length, with the leading spots in particular coalescing into a larger spot. The other regions of main interest include a region in the northwest, but this continues to fade slowly. A further region in the northeast is also of note, with some intermediate spot development, but so far remains a relatively small region with only minor magnetic complexity. Other regions appear smaller and simple at the present time.

There was a Coronal Mass Ejection (CME) seen from the flare peaking at 25/1159 UTC, but this has been assessed as missing Earth. No Earth directed CMEs were seen in the last 24 hours.

Solar Wind / Geomagnetic Activity: Solar winds showed some weak CME influence. Wind speed eased from slightly elevated levels near 430km/s to background levels around 330 km/s. Interplanetary Magnetic Field was mostly moderate. This was initially mainly northward directed, but erratically became more southward directed. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) reached above the S1/Minor Radiation Storm level between 25/0020-1125 UTC, but has since been declining.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate-class flares are considered likely with a slight chance of Strong flares, this risk reducing during the period as regions rotate off the disc.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2025. All Rights Reserved.

Solar Wind / Geomagnetic Activity: A CME which left the Sun on 24 Feb was largely obscured in imagery by a far side CME, making assessment difficult, however a glancing influence cannot be completely ruled out, most likely during Day 2 (27 Feb). Solar winds at Earth are currently showing some weak CME influence. The main upcoming enhancement is likely on Days 2-3 (27-28 Feb), with wind speeds of over 600km/s expected from a coronal hole. Wind speeds are likely to remain elevated or strong for the rest of the period, once the fast wind connects with Earth.

Generally Quiet to Unsettled geomagnetic activity is expected. Active intervals are possible however, along with a slight chance of G1/Minor Storm intervals, from CME influence on Days 1-2, as well as any coronal hole fast wind onset, particularly Days 2-3.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is expected to continue declining towards background. There remains a reducing chance of renewed enhancements if any further far-sided activity occurs, with a continuing slight chance from regions in the west of the Earth facing disc.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	10	20	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	Yes	70	70	60	50
Very Active	R3-R5 (X Class)	No	10	10	10	5

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2025. All Rights Reserved.

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**≥ S1**	Yes	25	15	10	10
Very Active	**≥ S3 ***	No	5	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2025. All Rights Reserved.